

United States Environmental Protection Agency
Region 5
Air Programs Branch
Air & Radiation Division
77 West Jackson Boulevard
Chicago, Illinois 60604

PREVENTION OF SIGNIFICANT DETERIORATION OF AIR QUALITY
CONSTRUCTION PERMIT

Permit Number: PSD-FDL-R50001-04-01

Issue Date: Proposed 8-30-04 Effective Date: DRAFT

In accordance with the provisions of the Clean Air Act and Title 40 Code of Federal Regulations Part 52 and applicable rules and regulations,

Great Lakes Gas Transmission Limited Partnership

is authorized to construct and operate air emission units and to conduct other air pollutant emitting activities in accordance with the permit conditions listed in this permit.

This source is authorized to operate in the following location(s):

**Cloquet Compressor Station No. 5
3741 Brandon Road
Cloquet, Minnesota 55720**

Cloquet Compressor Station No. 5 is located on privately-owned fee land within the exterior boundaries of the Fond Du Lac Band of Lake Superior Chippewa Indian Reservation.

Terms and conditions not otherwise defined in this permit have the meaning assigned to them in the referenced regulations. All terms and conditions of the permit are enforceable by EPA and citizens under the Clean Air Act.

Bharat Mathur
Acting Regional Administrator
U. S. EPA - Region 5

Date

Stephen Rothblatt, Director
Air and Radiation Division
U. S. EPA - Region 5

Date

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Abbreviations and Acronyms

Applicant	Great Lakes Gas Transmission Limited Partnership
acfm	Actual cubic feet per minute
ASTM	American Society for Testing and Materials
BACT	Best Available Control Technology
BHP	Brake Horsepower
CFR	Code of Federal Regulations
CO	Carbon monoxide
EPA	United States Environmental Protection Agency, Region 5
EU	Emissions unit
EU 001,002,003	Three (3) turbine/compressor units
EU 004	Standby electrical generator
Facility	Cloquet Compressor Station No. 5
g	Grams
gal	Gallon
Great Lakes	Great Lakes Gas Transmission Limited Partnership
HAP	Hazardous Air Pollutant
hr	Hour
kg	Kilogram
kW	Kilowatt
lb	Pound
MMBtu	Million British Thermal Units
MW	Megawatt
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO _x	Nitrogen Oxides
NO ₂	Nitrogen Dioxide
NSPS	New Source Performance Standard
NSR	New Source Review
O ₂	Oxygen
Permittee	Great Lakes Gas Transmission Limited Partnership
PM	Particulate Matter
PM ₁₀	Particulate matter less than 10 microns in diameter
ppm	Parts per million
PSD	Prevention of Significant Deterioration
psia	Pounds per square inch absolute
rpm	Revolutions per minute
SO ₂	Sulfur Dioxide
tpy	Tons per year
VOC	Volatile Organic Compounds

1.0 FACILITY DESCRIPTION

(A). General Source Information

Parent Company: Great Lakes Gas Transmission Limited
Partnership
5250 Corporate Drive
Troy, Michigan 48098

Facility: Cloquet Compressor Station No. 5
3741 Brandon Road
Cloquet, Minnesota 55066

County: St. Louis

Reservation: Fond du Lac Band of Lake Superior Chippewa Indians

Company Contact: Dorothy Fleming, Senior Environmental Specialist
Phone: (248) 205-7454

Facility Contact: Dick Goar, Operations Manager
Phone: (218) 879-1581

Responsible Official: John J. Wallbillich
Phone: (248) 205-7426

Tribal Contact: Chris Berini, Environmental Director
Phone: (218) 878-8006

SIC Code: 4922, Natural Gas Transmission

AFS Plant Id No.: 27 137 00066

Description of Process: Cloquet Station No. 5 is one of five Great Lakes compressor stations located in Minnesota. Compressors operated at these stations add pressure to natural gas in Great Lakes' pipeline causing it to flow to the next compressor station. Cloquet Station No. 5 is composed of natural gas fired turbine/compressors and one natural gas-fired standby electrical generator. The pipeline normally operates continuously, but at varying loads, 24 hours per day and 365 days per year.

(B). Emission Unit Descriptions

Emission Unit	Description	Manufacturer/ Model	Heat Input (MMbtu/hr)	Date Installed
EU 001	Natural Gas-fired Turbine	General Electric LM 2500	251.1	03/01/1989
EU 002	Natural Gas-fired Turbine	Rolls Royce Avon 76G	166.4	01/01/1970
EU 003	Natural Gas-fired Turbine	General Electric LM 1600	184.0	01/01/1992
EU 004	Natural Gas-fired Standby Electrical Generator	Caterpillar SR-4	4.8	01/01/1993

2.0 UNIT-SPECIFIC OPERATING CONDITIONS:

(A). Emission Limitations and Standards [40 CFR §52.21(j)(1)]

The Permittee shall comply with the following requirements:

1. Nitrogen Oxide NSPS Limitations.
 - i. Total NO_x emissions from EU 001 shall not exceed 191 ppmv at 15 percent oxygen and on a dry basis. [40 CFR §60.332(a)(2)]
 - ii. Total NO_x emissions from EU 003 shall not exceed 196 ppmv at 15 percent oxygen and on a dry basis. [40 CFR §60.332(a)(2)]
2. Sulfur Dioxide NSPS Limitations.

EU 001 and EU 003 shall not burn any fuel which contains sulfur in excess of 0.8 percent by weight. [40 CFR §60.333(b)]
3. PSD BACT Limitations [40 CFR §52.21(j)(12)]
 - i. NO_x emissions from EU 003 shall not exceed 160 ppmv at 15 percent oxygen and on a dry basis.

- ii. Total NO_x emissions from EU 003 shall not exceed 68 pounds per hour at any time during operation.
- iii. Total operating hours of EU 004 shall not exceed 3,000 hours per 12-consecutive month period, with compliance determined at the end of each month (12-month rolling sum).

4. Good Air Pollution Control Practice.[40 CFR §60.11(d)]

At all times, including start-up, shut-down, and malfunction, the Permittee shall, to the extent practicable, maintain and operate all sources including associated air pollution control equipment regulated by this permit in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance practices are being used is based on information which is available to EPA. This may include, but is not limited to, monitoring results, review of operating and maintenance procedures, and inspections of the facility. In addition, the Permittee shall comply with the following requirements:

- i. Develop and provide training to orient each facility plant operator with the applicable terms and conditions of this permit. Maintain a log of the time, date, place, and list of attendees for each training session, and a copy of the materials presented in the training sessions. Report to EPA, if requested. The records of the training shall be maintained at the facility and available for inspection by authorized representatives of EPA.
- ii. Develop and implement standard operation and maintenance procedures for each emission unit listed in this permit. Keep a copy of the procedures available at a location within the facility that is readily accessible to operators of the sources and to authorized representatives of EPA.

(B). Monitoring and Testing [40 CFR Part 60 and Sec. 114(a)(1) of the CAA]

1. The Permittee shall operate a continuous monitoring system to monitor and record the fuel consumption in EU 001 and EU 003.
2. In accordance with the custom fuel schedule approved by EPA on November 20, 1998, the Permittee shall comply with the following requirements: [40 CFR §60.334(b)]
 - i. The Permittee shall use only pipeline quality natural gas fed directly from the Great Lakes pipeline system to CS #5. Daily monitoring for nitrogen oxides shall not be required while only using pipeline quality natural gas.
 - ii. Great Lakes shall notify EPA and the Fond Du Lac Band of Lake Superior Chippewa Indians before any new turbine is added along the pipeline.
 - iii. The Permittee shall analyze the fuel sulfur content of the fuel used in EU 001 and EU 003. Sample analysis shall be conducted twice per annum (semiannually) in accordance with Section 2.0(B)(4)(v) of this permit. This monitoring shall be conducted during the first and third quarters of each calendar year.
 - iv. Should any sulfur analysis indicate noncompliance with the conditions set forth in this permit, the Permittee shall notify EPA and the Fond Du Lac Band of Lake Superior Chippewa Indians of such excess emissions and the custom sulfur monitoring schedule shall be re-examined by the Administrator. Sulfur monitoring shall be conducted weekly during the interim period when the custom schedule is being re-examined.
3. Monitoring. [Sec. 114(a)(1) of the CAA]

The Permittee shall monitor, in accordance with an EPA approved plan, the pounds per hour, as well as parts per million by volume, of NO_x emitted from EU 003. A monitoring plan shall be submitted for approval by EPA within 90 days from the effective date of this permit.

The monitoring plan shall include monitoring equipment siting, operating, and maintenance plan and procedures. If EPA identifies any problems with the monitoring plan the Permittee shall revise the plan to address the problems to EPA's satisfaction within an additional 90 days. Upon approval by EPA, the Permittee will immediately begin to comply with the monitoring plan.

4. Performance Testing. [Sec. 114(a)(1) of the CAA, 40 CFR §§60.335(b) and 60.8]

- i. An initial performance test for NO_x for EU 001 and EU 003 shall be performed within 12 months from the effective date of this permit.
- ii. Periodic performance testing for NO_x for EU 001 and EU 003 shall be performed every five calendar years, on or about the anniversary date of the initial compliance tests.
- iii. As required in this permit or upon additional request by EPA, the Permittee shall conduct performance tests for NO_x using as reference methods and procedures the test methods in appendix A of 40 CFR Part 60 and the methods and procedures in Section 2.0(B)(4)(iv) of this Permit (except as provided for in 40 CFR §60.8(b)). Acceptable alternative methods and procedures are given in paragraph 40 CFR §60.335(f).
- iv. The Permittee shall determine the NO_x emission rates from EU 001 and EU 003 as follows: [40 CFR §60.335(c)]

(a). The NO_x emission rate shall be computed for each run using the following equation:

$$NO_x = (NO_{xO}) * (P_r/P_O)^{0.5} * e^{19(H_O - 0.00633)} (288^\circ K/T_a)^{1.53}$$

NO_x = emission rate of NO_x at 15 percent O₂ and ISO standard ambient conditions, ppm by volume.

NO_{xo} = observed NO_x concentration, ppm by volume at 15 percent O₂.

P_r = reference combustor inlet absolute pressure at 101.3 kilopascals ambient pressure, mm Hg.
 P_o = observed combustor inlet absolute pressure at test, mm Hg.
 H_o = observed humidity of ambient air, g H_2O /g air.
 e = transcendental constant, 2.718.
 T_a = ambient temperature, degree Kelvin ($^{\circ}K$).

- (b). Method 20 shall be used to determine the NO_x and oxygen concentrations. The span values shall be 300 ppm of nitrogen oxide, and 21 percent oxygen. The NO_x emissions shall be determined at 30, 50, 75, and 100 percent of peak load or at four points in the normal operating range of the gas turbine.
- v. The Permittee shall determine the fuel sulfur content using the following:
- ASTM D 1072-80 or 90 (reapproved 1994), D 3031-81, D 4084-82, or 94, or D 3246-81, 92, or 96 (incorporated by reference-see §60.17). The applicable ranges of some ASTM methods mentioned above are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples before analysis (with verification of the dilution ratio) may be used, subject to the approval by EPA. [40 CFR §60.335(d)]

The "Test for Hydrogen Sulfide in Natural Gas Using Length of Stain Tubes" is an EPA approved alternative method to ASTM methods for fuel sulfur content monitoring for natural gas-fired turbines subject to NSPS Subpart GG.

(C). Recordkeeping and Reporting [Sec. 114(a)(1) of the CAA]

1. The Permittee shall maintain the following records:
 - i. Fuel usage and operating hours of EU 001 and EU 003;
 - ii. The results of all performance tests performed in accordance with this permit;

- iii. All training records required in accordance with this permit;
 - iv. Standard Operation and Maintenance Procedures for each emission unit;
 - v. EPA approved Monitoring Plan for determining NO_x mass emissions from EU 003; and
 - vi. The results of all fuel sulfur content analyses required in accordance with this permit.
2. In accordance with Section 2.0(B)(2)(iv), the Permittee shall notify EPA and the Fond Du Lac Band of Lake Superior Chippewa Indians if any sulfur analysis indicates noncompliance.

3.0 FACILITY-WIDE PERMIT CONDITIONS

(A). Performance Testing [40 CFR §60.8 and Sec. 114(a)(1) of the CAA]

The Permittee shall provide, or cause to be provided, performance testing facilities that include the following:
[40 CFR §60.8(e)]

- 1. Sampling ports adequate for the applicable test methods;
- 2. Safe sampling platform(s);
- 3. Safe access to sampling platform(s); and
- 4. Utilities for sampling and testing equipment.

(B). Notification [40 CFR §60.7 and 60.8 and Sec. 114(a)(1) of the CAA]

The Permittee shall furnish EPA written notification as follows:

- 1. A notification of any physical or operational change to EU 001, 002, 003 and 004 or to the existing facility which may increase the emission rate of any air pollutant to which a standard applies, unless the change is specifically exempted from this notification

requirement by 40 CFR Part 60 Subpart GG or §60.14(e). This notice shall be postmarked 60 days or as soon as practicable before the change is commenced and shall include information describing the precise nature of the change, present and proposed emission control systems, productive capacity of the facility before and after the change, and the expected completion date of the change. EPA may request additional information subsequent to this notice. The Permittee must respond to an information request within a reasonable time.

2. A notification of any performance testing at least 30 days prior to the planned test date. If after 30 days notice for a scheduled performance test, there is a delay (due to operational problems, etc.) in conducting the scheduled performance test, the Permittee shall notify EPA as soon as possible, either by providing at least 7 days prior notice of the rescheduled date of the performance test or by arranging a reschedule date with the EPA by mutual agreement. [40 CFR §60.8(d)]

(C). Recordkeeping, and Reporting [40 CFR §60.7 and 60.8 and Section 114(a)(1) of the CAA]

1. The Permittee shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of EU 001 and EU 003; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative that include the following: [40 CFR §60.7(b)]
 - i. Date and time of startup, shutdown, or malfunction;
 - ii. Duration of shutdown or malfunction;
 - iii. Sufficient information to explain the cause of the startup, shutdown, or malfunction; and
 - iv. Steps taken to resolve the problem and limit excess emissions.
2. The Permittee shall maintain at the facility at which the permitted units are located a file of all measurements, including continuous monitoring system,

monitoring device, and performance testing measurements; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required by this Permit or 40 CFR Part 60 recorded in a permanent form suitable for inspection. The file shall be retained for a least two years following the date of such measurements, maintenance, reports, and records. [40 CFR §60.7(f)]

3. Within 45 days after completion of a performance test, the Permittee shall submit a copy of the results to EPA. [40 CFR §60.8(a)]

4.0 GENERAL PERMIT CONDITIONS

The following general terms and conditions apply under the authority of the Clean Air Act and 40 CFR §52.21 and 40 CFR § 124.

(A). Definitions [40 CFR §§52.21(b), 124.2, 124.41]

Terms and conditions in this permit have the meaning assigned to them in Parts 52.21 and 124 unless other regulations or statutes are referenced or applicable.

(B). Issuance and effective date of Permit [40 CFR §124.15]

This permit shall become effective 30 days after EPA issues a final permit decision unless;

1. A later effective date is specified in the decision; or
2. Review is requested under the appeal procedures under 40 CFR §124.19; or
3. No comments requested a change in the draft permit, in which case the permit shall become effective immediately upon issuance. A final permit decision means a final decision to issue, deny, modify, revoke and reissue, or terminate a permit.

(C). Construction without a Permit [40 CFR §52.21(r)(1)]

If the Permittee constructs or operates any source or modification not in accordance with the terms of any

approval to construct, the Permittee shall be subject to appropriate enforcement action.

(D). Construction Approval [40 CFR §52.21(r)]

1. Nothing in this permit shall alter the requirement for the Permittee to obtain a pre-construction permit before commencement of construction or modification of an emission unit.
2. Approval for construction or installation shall not relieve any Permittee of the responsibility to comply fully with applicable provisions of any other requirements under Fond du Lac Band of Lake Superior Chippewa Indian law or Federal law.

(E). Compliance with Permit Requirements

The Permittee must comply with each permit term and condition. Failure to comply with the terms and conditions of this permit or any other applicable provisions under the Clean Air Act or 40 CFR §52.21 constitutes noncompliance and a violation of 40 CFR §52.21 and the Clean Air Act, and is grounds for:

1. An enforcement action under section 113 of the Clean Air Act;
2. Permit termination, revocation and reissuance, or modification in accordance with 40 CFR §52.21; or
3. Denial of a Federal operating permit application under 40 CFR Part 71.

(F). Credible Evidence [40 CFR §60.11(g), 40 CFR §52.33(a), and 62 FR 8314 (February 24, 1997)]

For purposes of establishing whether or not the owner or operator of the facility has violated or is in violation of any standard in this permit, nothing in this permit precludes the use by the source, the EPA or the public, of any credible evidence to determine whether the facility would have been in compliance with applicable requirements if the appropriate performance test or procedures had been performed.

(G). Submittals

1. Unless otherwise directed by EPA or this permit, the Permittee shall submit a copy of all test plans, reports, certifications, notifications, and other information pertaining to compliance with this permit to:

**Air Enforcement and Compliance
Assurance Branch (AE-17J)
Air and Radiation Division
EPA Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604**

2. The Permittee shall submit permit applications, applications for permit amendments, and other applicable permit information, which includes but is not limited to installation of control equipment, replacement of an emissions unit, and requests for changes that contravene current permit terms, to:

**Air Permits Section
Air Programs Branch (AR-18J)
EPA Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604**

3. The Permittee shall submit all submittals that are required by the Acid Rain Program to:

**U. S. Environmental Protection Agency
Clean Air Markets Division
Ariel Rios Building (6204J)
1200 Pennsylvania Avenue N.W.
Washington D.C. 20460**

(H). Certification [40 CFR §52.21.]

1. The Permittee shall certify all reports, compliance certifications, or other documents submitted to EPA under this permit.

2. All reports, compliance certifications, or other documents submitted to EPA under this permit shall include the following statement:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine, imprisonment, or both, for knowing violations. See, e.g., 18 U.S.C. § 1001.

3. The certification must be signed by a corporate officer or other responsible management official.

(I). Severability [40 CFR §52.21(bb)]

The terms and conditions in this permit are distinct and severable. Each permit term and condition is independent of the permit as a whole and remains valid regardless of a challenge to any other part of this permit. If any term or condition in this permit is held invalid, such invalidity shall not affect other provisions or the application of such terms or conditions.

(J). Permit Rescission [40 CFR §52.21(w)]

This permit shall remain in effect, unless and until it expires under 40 CFR §52.21(r) or is rescinded. The Permittee may request that EPA rescind this permit or a particular portion of this permit. If EPA rescinds this permit, or any portion of this permit, the public shall be given adequate notice of the rescission. Publication of an announcement of rescission shall be given in a newspaper of general circulation in the affected region within 60 days of the rescission.

(K). Entry and Inspection [Sec. 114(a)(2) of the CAA]

The Permittee shall allow an EPA authorized representative, upon presentation of credentials, to:

1. Have a right of entry to, upon, or through any premises where a source subject to this permit is located or where records required by this permit are kept;
2. At reasonable times, have access to, and copies of any records required by this permit;
3. Inspect any monitoring equipment and method required by or referenced in this permit; and
4. Sample any emissions to assure compliance with this permit or other applicable requirements.

(L). Circumvention [40 CFR §60.12]

The Permittee shall not build, erect, install, or use any article, machine, equipment or process, the use of which conceals any emission which would otherwise constitute a violation of an applicable standard.